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First Named Inventor: WU, DONG

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Title: AQUEOUS INK JET PRINTABLE COMPOSITIONS

DECLARATION OF PETER T. ELLIOTTCommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR § 1.8(a)]**

I hereby certify that this correspondence is being:

☒ deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.☐ transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at 571-273-8300.Feb. 16, 2006
DateShannon M. Bruce
Signed by:

I, Peter T. Elliott, declare that:

1. I am the same Peter T. Elliott who is identified as an inventor in US Application No. 10/000,284.
2. I hold a Doctor of Philosophy in Chemistry from North Dakota State University located in Fargo, North Dakota.
3. I am currently employed at Minnesota Mining and Manufacturing Company in St. Paul, Minnesota in a capacity for research and development.
4. In order to provide evidence that unexpected results were obtained with inks of the present claimed invention over several commercially available products, I have summarized the following experiments which I carried out.

Summary of Experiments

The four sets of ink jet inks described in Table 1 were evaluated for waterfastness on cotton fabric. The inks used in Example 1 were aqueous pigment-based 3M inks comprising silyl-terminated polyester-urethane. Print cartridges provided with an Epson 850 Color Stylus were emptied and filled with the inks and printed using the print mode setting described in Table

1. For Comparative Examples 1-3, the commercially available desktop printers described in Table 1 were used to print the manufacturers' inks designated for the particular printers.

Table 1

Example	Ink Set	Printer	Print Mode Setting
1	pigment-based 3M inks	Epson 850 Color Stylus	Photo Enhance2, 1440 dpi, Photo-Quality
Comparative 1	dye-based Epson inks	Epson 700 Color Stylus	Photo Enhanced, 1440 dpi, Photo-Quality
Comparative 2	pigment-based Epson inks	Epson C80	Photo Enhance4, 1440 dpi, Premium Glossy Photo
Comparative 3	dye-based HP inks	Hewlett- Packard 970Cse	Best Mode, Photo Enhanced, Photo- Quality Glossy


Each of the inks was printed onto a cotton textile wipe (TX-309 from TexWipe) and then the printed samples were allowed to sit overnight for drying at room temperature. Initial Status T color density measurements were taken using a Greyttag SPM55 handheld spectrophotometer (Greyttag Data and Image Systems) calibrated to the cotton textile wipe substrate and set to D65, 2 degree observer. The printed samples were then subjected to 3 wash cycles [Maytag stackable washer set to hot water, small load, 8 minute wash cycle with 30 grams of 1993 Standard Reference Detergent without optical brightener]. After each wash cycle, the samples were allowed to dry overnight and then Status T color density measurements were recorded to evaluate the washfastness. The data are summarized in Table 2 and photographs are provided in Appendix A.

Table 2

Example	% Density Retained		
	Cyan	Magenta	Yellow
1	67	88	81
Comparative 1	21	4	71
Comparative 2	26	26	33
Comparative 3	13	14	15

5. All statements made herein of my own knowledge are true and all statements made herein on information and belief are believed to be true; and further statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under 18 USC § 1001 and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

FEB 16th, 2006
Dated


Peter T. Elliott